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A Comparative Analysis of Consumers WTP for Organic and Cloned Animal Food Products

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ABSTRACT

With continuous advances in biotechnology, the likelihood of animal cloning being used as a livestock breeding technique has existed. The possibility for milk and meat from cloned animals entering the food supply has gotten even closer when after a long period of consideration, the Food and Drug Administration (FDA) in 2008 concluded that meat and milk from cloned animals is as safe to eat as food from conventionally bred animals. In the present study an attempt has been made to predict the willingness to pay (WTP) for these products. Primary data was collected by interviewing 200 consumers (NDRI and GADVASU milk parlor), who were the regular consumers of the milk products in the two distinct areas of northern India to find out their willingness to pay for the products. Fresh milk is generally regarded as the most important cloned and organic animal food product which will be valued by majority of the consumers. Consumers are generally willing to pay more for the organic products as compared to cloned products as they have not yet entered in the food chain value system. The findings proposed that the people are interested and willing to pay more to buy organic and cloned animal food products because of their sustainability and more nutrition levels. These products should be integrated with our food value chain for feeding the future generations.

Key words: *Cloning, Willingness, Sustainability, Feeding.*

INTRODUCTION

Almost invariably, the introduction of food products from new techniques in agricultural biotechnology is preceded by some degree of consumer apprehension. The introduction of genetically modified (GM) foods is a case in point and this was fraught with debate and different adoption rates among countries. Consumers generally have higher acceptance for plant-based products rather than animal-based products using the different GM technologies[9,10]. Animal cloning have some sort of similarities with the GM technology in terms of consumer awareness and acceptance[12].

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The findings from some studies indicated that 40-50 percent of consumers would not purchase the products derived from the cloned animals[1,4,7,15]. From some other studies we find that consumers have higher value for non-cloned products than cloned products[1,4,5]. However the acceptance of cloned animal products are different in different countries according to The Gallup Organisation[15]. Issues of animal cloning for food supply is a new and complex topic, society and politicians is considering it carefully in the context of the existing legal framework, bearing in mind food safety, the desire of consumers for information, animal health and welfare and other relevant factors such as ethical considerations. It is obviously that over the past hundred years, the food assortment has dramatically changed, and with it has also changed the composition of the nutrient intake. Increasing people's interest in healthier food, there is an increasing interest in the nutrients that not only provides the body with necessary substances, but also improves the health and well-being. Organic products are generally preferred more by the consumers for their environment friendly nature. Environment friendly products are popular among the consumers because they are more aware about their health and protection of the environment. Marketers involved in sales of organic food have to segment their market scientifically in order to maximize the market share. People who believe in health benefits, taste and protection of environment are believed to improve their life style can be the potential consumers of organic food. Willingness to pay is the maximum amount of money any individual is willing to give for procurement of any particular good or service. It generally ensures how much the consumers are willing to pay for the products if they are in the market in the future days. Consumers' willingness to pay for regulation to ensure cloned products are labeled is influenced by gender, bid amount, level of education, and knowledge of cloning[8]. The International Food Information Council[7] however, found that consumers' willingness to purchase meat, milk, or eggs from the offspring of cloned animals increased from about 41 percent in 2006 to about 46 percent in 2007. Van Loo *et al.*[17] estimated consumers' WTP for organic chicken by using a choice experiment. Results indicated that consumers were willing to pay a premium of $1.193/lb. (34.8percent) for the general organic label and $3.545/lb (103.5percent) for the USDA organic label. Brooks and Lusk[4] reported about the demand of the consumers regarding cloned and non-cloned animals. Consumers generally have some negative perception about cloning and they prefer organic and rBST milk three times as compared to cloned animal's milk. Serogaroli *et al.*[13] found Italian consumers with higher information about GM food perceive GM food as a high risk and are willing to pay more for GM free products. Jones *et al.*[8] determined how much the consumer is ready to pay for clone free labels. Survey results showed that 59.46% of respondents were willing to pay for clone-free label products. Demographic variables like gender and education influenced respondents' WTP for clone-free labels. Females were 22 percent more likely to pay for a label and respondents who were knowledgeable about cloning and who read labels were 2 percent less likely to pay for labels. Sosin and Richards[14] reported that one third of the consumers are willing to buy products from cloned animals, some proportion of the consumers will buy these products if they have required information and some proportion of the consumers are not ready to buy these products. Consumers were ready to accept animal cloning if that resulted in improvement of animal wellbeing and better nutrition. Kerley who examined the economic impacts of expiry dates on perishable goods by eliciting respondents' willingness to accept (WTA) milk of different ages. They found that compensation increased rapidly with increasing age of the milk and such compensation could imply a negative price for the product to be acceptable. According to Carpio and Isengildina[6] income was an important driver of WTP for local attributes in animal produce. Piyasiri and Ariyawardana

showed that an increase in income increases the probability of WTP for organically produced vegetables in Kandy. Consumers' willingness to pay for regulation to ensure cloned products are labelled is influenced by gender, bid amount, level of education, and knowledge of cloning[8]. The International Food Information Council[7] however, found that consumers' willingness to purchase meat, milk, or eggs from the offspring of cloned animals increased from about 41 percent in 2006 to about 46 percent in 2007.

People are interested and willing to pay more to buy organic and cloned animal food products because of their sustainability and more nutrition levels. These products should be integrated with our food value chain for feeding the future generations. Taking these facts into consideration, this study was conducted to find out the willingness to pay (WTP) among the consumers.

MATERIAL AND METHODS

The ex-ante research design was used in conducting the present investigation. The present study was carried out in ICAR-NDRI, Karnal and GADVASU, Ludhiana milk parlor of Northern India as the people visiting these institutes were regular consumers of dairy products. The study population comprised 100 consumers from each milk parlor of the institute who have visited regularly for purchase of milk and milk products. Thus a total of 200 respondents were selected for the investigation. Respondents were divided into three categories as Young (upto35), Adult (36-50) and Old (>50) for convenience. A structured and pre-tested interview schedule was used to collect the information from respondents to find out their willingness to pay (WTP) for organic and cloned animal food products. To analyze the proper willingness to pay (WTP) we have taken five standard dairy products which are most preferred by the consumers. Diffrent price ranges covering the actual price of the product were taken to properly analyze their willingness to pay(WTP). Data collected were statistically analyzed with the help of frequency, percentage and mean. The data were separately interpreted to find out the comparative analysis of willingness to pay (WTP) among the cloned and organic animal food products.

RESULTS AND DISCUSSION

The [**Table – 1**] indicated that in case of cloned animal based food products, 51.50 percent of respondents were willing to pay for fresh and flavored milk, closely followed by Paneer (51%).whereas 45.50 and 44.50 percent respondents were willing to pay for burfi and Ghee respectively. The data presented in same table indicated that in case of organic animal based food products, respondents were willing more to pay as compared to cloned animal based products. Table 4.26 showed that 64 percent of the respondents were willing to pay for fresh and flavored milk followed by 57.50, 55.00 and 47.50 percent willingness for paying to Paneer, Ghee and Burfi respectively. It could be concluded from the table that respondents were more aware about the organic products as these products are available in market and less aware about cloned animal based products

Table 1: General view of WTP for organic and cloned animal food products

Sl No.	Milk products	Cloned animal food		Organic animal food products	
		Frequency	Percentage	Frequency	Percentage
1	Paneer	102	51.00	115	57.50
2	Ghee	89	44.50	110	55.00
3	Burfi/kalakand	91	45.50	95	47.50
4	Lassi/milk	92	46.00	105	52.50
5	Fresh milk	103	51.50	128	64.00

Proportions of the respondents who are willing to pay for the cloned animal food products are presented in the table. We have taken different price ranges for taking out the relative price range which will be preferred by majority of the consumers. We have taken different standard dairy products and their prices as measuring yardstick which are available in NDRI/GADVASU milk parlor. [**Table – 2**] Indicates that majority of the consumers (37.50%) are preferring paneer in the price range of Rs (220-230).In case of Ghee majority of the consumers (29.50%) prefer the price range of Rs (491-510). Burfi (34.00%) was preferred in the price range of Rs (230-240).In case of lassi/milk Rs (13-15) was preferred by majority of the consumers (34.00%). Fresh milk was rated highest in the price range of Rs (10-12) by the consumers (33.00%). By the results it is clearly indicated that cloned animal products are generally less preferred by the consumers and they are willing to pay less for the products as they have not yet entered in the market of India. Similar findings are reported from the research of Serogaroli *et al.*[13] which indicated that consumers are willing to pay less money for the cloned animal products.

Table 2: Willingness to pay for Cloned animal products

Sl. No	Milk products	Price range	Respondents category			
			Young (n=156)	Adult (n=36)	Old (n=8)	Pooled (n=200)
1	**Paneer**	220-230	42 (26.92)	14 (31.82)	2 (25.00)	75 (37.50)
		231-240	68 (43.59)	12 (27.27)	4 (50.00)	57 (28.50)
		241-250	24 (15.38)	10 (22.73)	1 (12.50)	36 (18.00)
		251-260	22 (14.10)	8 (18.18)	1 (12.50)	32 (16.00)
2	**Ghee**	470-490	51 (32.69)	13 (29.55)	1 (12.50)	59 (29.50)
		491-510	63 (40.38)	14 (31.82)	3 (37.50)	66 (33.00)
		511-530	20 (12.82)	10 (22.73)	2 (25.00)	38 (19.00)
		531-550	22 (14.10)	7 (15.91)	2 (25.00)	37 (18.50)
3	**Burfi/kalakand**	230-240	55 (35.26)	13 (29.55)	2 (25.00)	68 (34.00)
		241-250	46 (29.49)	16 (36.36)	3 (37.50)	60 (30.00)
		251-260	30 (19.23)	8 (18.18)	2 (25.00)	35 (17.50)
		261-270	25 (16.03)	7 (15.91)	1 (12.50)	37 (18.50)
4	**Fresh and flavoured milk**	10-12	59 (37.82)	14 (31.82)	1 (12.50)	66 (33.00)
		13-15	41 (26.28)	12 (27.27)	4 (50.00)	61 (30.50)
		16-18	31 (19.87)	9 (20.45)	2 (25.00)	35 (17.50)
		19-21	42 (26.92)	9 (20.45)	1 (12.50)	38 (19.00)

Proportions of the respondents who are willing to pay for the organic animal food products are presented in the table. We have taken different price ranges for taking out the relative price range which will be preferred by majority of the consumers.

Table 3: Willingness to pay for Organic animal products

Sl. No	Milk products	Price range	Respondents category			
			Young Group	Adult Group	Old Group	Pooled
1	**Paneer**	230-240	35 (22.44)	9 (20.45)	2 (25.00)	38 (19.00)
		241-250	38 (24.36)	10 (22.73)	2 (25.00)	42 (21.00)
		251-260	55 (35.26)	14 (31.82)	3 (37.50)	65 (32.50)
		261-270	28 (17.95)	11 (25.00)	1 (12.50)	55 (27.50)
2	**Ghee**	480-500	31 (19.87)	14 (31.82)	2 (25.00)	39 (19.50)
		501-520	32 (20.51)	8 (18.18)	3 (37.50)	42 (21.00)
		521-540	38 (24.36)	10 (22.73)	1 (12.50)	54 (27.00)
		541-560	55 (35.26)	12 (27.27)	2 (25.00)	65 (32.50)
3	**Burfi/kalakand**	230-240	38 (24.36)	14 (31.82)	2 (25.00)	55 (27.50)
		241-250	36 (23.08)	16 (36.36)	1 (12.50)	65 (32.50)
		251-260	45 (28.85)	7 (15.91)	3 (37.50)	42 (21.00)
		261-270	37 (23.72)	9 (20.45)	1 (12.50)	38 (19.00)
4	**Fresh and flavoured milk**	10-12	38 (24.36)	10 (22.73)	3 (37.50)	46 (23.00)
		13-15	34 (21.79)	9 (20.45)	2 (25.00)	52 (26.00)
		16-18	46 (29.49)	14 (31.82)	2 (25.00)	62 (31.00)
		19-21	38 (24.36)	11 (25.00)	1 (12.50)	40 (20.00)

We have taken different standard dairy products and their prices as measuring yardstick which are available in NDRI/GADVASU milk parlor. [**Table – 3**] indicates that majority of the respondents are preferring paneer in the price range of Rs(251-260). In case of Organic ghee majority (32.50%) of the consumers are preferring the price range of Rs(541-560). Burfi(32.50%) was preferred in the price range of Rs (241-250). In case of lassi/milk (31.00%) price range of Rs (16-18) was mostly preferred by the consumers. Fresh milk (31.00%) was rated highest in the price range of Rs (19-21) by the potential consumers. There is clear indication from the results that the consumers are generally willing to pay more as compared to cloned animal food products for better nutrition and sustainability in the environment. These results are also supported by the research of Van Loo *et al.*[17] which indicated that consumers are willing to pay more for the organic labels.

CONCLUSION

Similar to the advent of genetically modified foods in the marketplace, consumers will be unable to tell whether the milk they purchase is from a cloned cow or simply regular milk

from a conventionally bred cow whenever milk from cloned cows eventually enters the food supply. This follows the FDA's ruling on products from cloned animals subsequent to its risk assessment, which revealed that food products from cloned animals are as safe as that from conventionally bred ones and for which reason mandatory labeling is not required. This ruling effectively puts a future introduction of food products from cloned animals in a rather contentious position that has potential ramifications including ineffective markets and welfare reduction depending on consumer reaction. People are interested and willing to pay more to buy organic and cloned animal food products because of their sustainability and more nutrition levels. These products should be integrated with our food value chain for feeding the future generations. Further research can be conducted how the cloned and organic animal food products will affect the consumption pattern of the people and its contribution towards the food basket change of the people.

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